



Keystone Initiative for Network Based Education and Research

March 7, 2014

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Dear Commissioners;

The Keystone Initiative for Network Based Education and Research (KINBER) hereby submits, for your consideration, an Expression of Interest in participating in the Next-Generation Network Experiments In Rural America described in WC Docket No.10-90, released on January 31, 2014.

The nature of the submitting entity

The Keystone Initiative for Network Based Education and Research (KINBER) is a 501(C3) nonprofit corporation that built and maintains a statewide research and education network across Pennsylvania.

In February 2010, the National Telecommunications and Information Administration (NTIA) awarded KINBER a \$99.6 million grant for the development, implementation and management of a middle-mile network called PennREN. KINBER provided over \$29M in local match to fund the completion of PennREN, a network comprised of 1,612 miles of fiber and network equipment delivering services to locations throughout the Commonwealth of Pennsylvania for use by community anchor institutions including universities, colleges, K-12 schools, libraries, public media organizations, and healthcare organizations. This grant-funded construction project was completed on-time and on-budget.

Since the network's completion in early 2013, KINBER has increased its middle mile footprint to over 1,800 fiber miles and 71 nodes on the network. KINBER fiber is currently available in 51 of the 67 counties in the Commonwealth and reaches into many rural areas.

PennREN is a next generation network that provides Pennsylvania's Community Anchor Institutions (CAIs) with competitively priced services that enhance the opportunities for collaboration and economies of scale for network transport, transit, and connectivity. PennREN is peered with other networks in the Commonwealth and is involved in many public-private partnerships to enhance service delivery and opportunity.

Nature of the project and its objective

Of Pennsylvania's 67 counties, 48 are rural (72%). Many of these areas are unserved or underserved by affordable, high-speed broadband. The FCC Connect America Cost Model (CAM v4.0) data shows unserved, and underserved need in 65 of the counties in PA, with the majority of the need primarily concentrated in rural counties.



KINBER is requesting to fund an experiment to upgrade the network connectivity, through either fiber builds or WAN wireless network deployment, to schools and libraries as identified in the in census tracts across at least 26 counties in Pennsylvania. KINBER already has a robust middle-mile fiber plant that could easily accommodate this influx of users while providing increased speed in a cost effective manner. Of these 26 initially targeted counties, 17 are rural and 9 are seen are urban; but all indicted need, reflected in high annual support costs on the FCC Unserved Census Tract data sheet. The impact of this investment will result in higher bandwidth network connectivity as well as on-going cost savings to the CAI and a diminishing level of subsidy required. In essence, this funding will lower on-going cost, provide higher speeds and the opportunity for more distributed connectivity, especially in the more rural and unserved areas of the Commonwealth. KINBER believes that this investment will aid in completing the President's ConnectED objectives by providing robust connectivity to the most needy communities in Pennsylvania by first connecting the schools and libraries where students, educators, and the community gather.

Current problem statement

The FCC has observed that broadband, "can be an important tool to help educators, parents and students meet major challenges in education. The country's economic welfare and long-term success depend on improving learning for all students, and broadband-enabled solutions hold tremendous promise to help reverse patterns of low achievement."

In Pennsylvania, Internet connectivity in public libraries and schools varies greatly depending on the region's costs for connectivity, availability of high-speed service, and the technology skill level of staff. Currently, public libraries in PA offer access to the Internet at more than 7,600 public access computers terminals and via public WIFI access points across nearly all of the state's 660+ public library buildings. In many cases these are the only access points that some community residents have to high speed connectivity.

While basic connectivity is important, the speed of the network is critical for the use and adoption of modern communication and education technologies. In a 2013 survey of PA public libraries, 37% reported providing a download speed to the public at less than 10Mbps, with upload speeds much lower in many cases. Public-use Internet connection speeds of less than 25 Mbps were reported at 68% of public libraries. These lower speed connections prevent libraries, as community anchor institutions and centers for resource sharing, from providing full utilization of advanced technology resources.

For 61% of Pennsylvania communities, the public library is the only place for free Internet access. The speed of the network determines the number of PCs or laptops that can be connected, speed and number of WIFI connections available, the ease of access to media rich resources, and the ability of a person to use a public computer to fill out online government or job forms completely within the time limits of the library. The need for speed will continue to increase, as people will need to access media-rich information related to education, government, medical records, and other important resources.



Current inconsistencies with bandwidth prevent many community libraries from effectively participating in statewide resource sharing and training opportunities, which limits the number of resources, services, and programs available to the public.

Public libraries and schools need to continue to build the infrastructure and capacity to become premium technology access centers and leaders of innovation, education, and economic development in their communities. Libraries strive to provide the fastest possible connection to the highest quality level of technology resources for the public to access in rural, urban, and suburban public library facilities, and funding for connectivity will make this possible

KINBER proposes a project that will break down barriers to high speed broadband for schools, libraries and their surrounding communities and will work in partnership to develop "Community Solutions" where the CAIs become instrumental to the betterment of the community as a whole through the provision of broadband access.

KINBER will provide upgraded connectivity (at speeds no less than 100Mbps and with a target of 1Gbps) to schools and libraries in the FCC designated Census tracts. We envision a plan for the deployment of high-speed wireless within the schools and libraries as well as potential Wireless WANs to connect those locations where fiber is unfeasible to build or unnecessary.

Identification of the proposed service area for the experiment

KINBER proposes to connect schools and libraries in targeted census tracts in, at least the following 26 counties in Pennsylvania:

Adams	Indiana
Allegheny	Lackawanna
Armstrong	Lancaster
Berks	Luzerne
Blair	Perry
Centre	Schuylkill
Clarion	Snyder
Clinton	Somerset
Crawford	Tioga
Cumberland	Union
Erie	Washington
Forest	West Moreland
Huntingdon	York

Nature of the broadband service to be deployed.

KINBER will focus on building last mile fiber or implementing wireless WAN technologies to the CAIs in the identified census tracts. We believe that we will be replacing existing T1 and dial-up access in some rural locations. Replacing this dated technology with a 1Gb circuit will result in long-term cost efficiencies and provide future scalability.



KINBER will meet or exceed the current SETDA guidelines for FY2018:

External Internet connection

2014-15 School Year	At least 100 Mbps/1000 students/staff
2017-18 School Year	At least 1 Gbps/1000 student/staff

Internal WAN

2014-15 School Year	At least 1 Gbps/1000 student/staff
2017-18 School Year	At least 10 Gbps/1000 student/staff

Contemplated service offerings

KINBER proposes to offer broadband services speed tiers of a minimum of 100Mbps. 1Gbps will be the connection of choice with the scalability to go to 10Gbps with little additional investment.

Partners

KINBER will work with the appropriate Pennsylvania agencies and departments to identify, recruit, and select locations for fiber builds that are in areas of most need. At this time, it is unknown what level of local funding commitment could be applied to this project.

Further, KINBER proposes to work with existing telecommunications partners in the identified areas and is currently in discussions with many who provide services or would be willing to partner to provide community-wide access.

Whether the proposal is expected to require one-time or continuing funding

This proposal outlines a one-time capital funding of approximately \$40M that will be used to connect hundreds of schools and libraries to the existing fiber backbone.

A high-level estimate of the amount of funding requested and time frame for the project

KINBER is requesting an estimated \$40M to fund this project fully and expects to compete the project in 24-30 months from time of award.

Thank you for this opportunity.

Sincerely;

Gwendolyn L. Huntoon
Executive Director

Patricia A. Campbell
External Affairs